

REMARKS

Claims 1-25 are all the claims pending in the application.

I. Objection to the Drawings

The Examiner has objected to the drawings for the reasons set forth on pages 2-3 of the Office Action. In particular, the Examiner asserts that the drawings do not show a multileaf-collimator-position-calculation-unit, a motion-speed-calculating-unit, a motion-speed-limit-establishing-unit, a motion-display-unit, a motion-acceleration-calculating-unit, a motion-acceleration-limit-inputting-unit, a motion-speed-limit-inputting unit, and a motion-speed-limit-setting-unit, as recited in the claims.

Applicant is submitting herewith new drawings (Figs. 12-20) which depict the above-noted elements. Applicant respectfully submits that no new matter has been added by the addition of these drawings. In view of the foregoing, Applicant kindly requests that the objection to the drawings be reconsidered and withdrawn.

II. Objections to the Specification

The Examiner has objected to the specification for the reasons set forth on page 2 of the Office Action. Applicant has amended the specification as suggested by the Examiner. No new matter has been added. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the objection to the specification.

III. Objection to the Claims

The Examiner has objected to claims 7, 9-13, 15-19 and 23 for the reasons set forth on page 3 of the Office Action. Applicant has amended the claims so as to remove the phrase “in

order”, thereby addressing the Examiner’s objection. Accordingly, Applicant respectfully requests that the objections to the claims be reconsidered and withdrawn.

IV. Claim Rejections under 35 U.S.C. § 102

The Examiner has rejected claims 1-25 under 35 U.S.C. § 102(b) as being anticipated by Siochi et al. (U.S. 6,052,430).

Claim 1, as amended, recites the features of a motion-speed-calculating-unit that calculates leaf motion speed based on the generated time series leaf positions; and a motion-display-unit that indicates motion information of an area where the calculated motion speed exceeds an established motion speed limit. Applicant respectfully submits that Siochi fails to disclose or suggest at least these features of claim 1.

Siochi discloses a method for dynamic subspace intensity modulation using a radiation treatment apparatus 2 having a multi-leaf collimator with a plurality of movable leaves 41, 42 (see Fig. 3). In particular, as disclosed in Siochi, margin regions at the edges of a static radiation field are intensity modulated by moving the collimator leaves 41, 21 at a constant velocity over these regions (see Figs. 4a-4c; col. 2, line 62 through col. 3, line 2; and col. 8, lines 53-56).

Thus, while Siochi discloses that the collimator leaves move at a constant velocity over the margin regions of the radiation field, Applicant respectfully submits that there is no disclosure or suggestion in Siochi of a motion-speed-calculation-unit that calculates leaf motion speed based on generated time series of leaf positions, or of a display unit that indicates motion information of an area where the calculated motion speed exceeds an established motion speed, as recited in claim 1.

In view of the foregoing, Applicant respectfully submits that Siochi fails to disclose, suggest or otherwise render obvious all of the features recited in claim 1. Accordingly, Applicant

submits that claim 1 is patentable over Siochi, an indication of which is kindly requested.

Claims 2-6 depend from claim 1 and are therefore patentable at least by virtue of their dependency.

Regarding claim 7, Applicant notes that this claim has been amended to recite the features of a motion-speed-calculating-unit that calculates leaf motion speed based on generated time series leaf positions; and a leaf-position-correction-unit that corrects the leaf positions of an area, where the calculated motion speed exceeds the established motion speed limit, such that the leaf motion speed is equal to or less than the established motion speed limit. Applicant respectfully submits that Siochi fails to disclose or suggest at least these features of claim 7.

As noted above, Siochi discloses collimator leaves which move at a constant velocity over the margin areas of a radiation field. Applicant respectfully submits however, that there is no disclosure or suggestion in Siochi of a motion-speed-calculating-unit that calculates leaf motion speed based on generated time series leaf positions, or of a leaf-position-correction-unit that corrects the leaf positions of an area, where the calculated motion speed exceeds the established motion speed limit, such that the leaf motion speed is equal to or less than the established motion speed limit, as recited in claim 7.

Thus, Applicant respectfully submits that Siochi fails to disclose, suggest or otherwise render obvious all of the features recited in claim 7. Accordingly, Applicant submits that claim 7 is patentable over Siochi, an indication of which is kindly requested. Claims 8-19 depend from claim 7 and are therefore patentable at least by virtue of their dependency.

Regarding claim 20, Applicant notes that this claim has been amended to recite the features of a motion-acceleration-calculating-unit that calculates leaf motion acceleration based on the generated time series leaf positions; and a motion-display-unit that indicates motion information of an area where the calculated motion acceleration exceeds an established

acceleration limit. Applicant respectfully submits that Siochi fails to disclose or suggest at least these features of claim 20.

As noted above, Siochi discloses collimator leaves which move at a constant velocity over the margin areas of a radiation field. Applicant respectfully submits, however, that there is no disclosure or suggestion in Siochi of a motion-acceleration-calculating-unit that calculates leaf motion acceleration based on the generated time series leaf positions, or of a motion-display-unit that indicates motion information of an area where the calculated motion acceleration exceeds an established acceleration limit, as recited in claim 20.

Thus, Applicant respectfully submits that Siochi fails to disclose, suggest or otherwise render obvious all of the features recited in claim 20. Accordingly, Applicant submits that claim 20 is patentable over Siochi, an indication of which is kindly requested. Claims 21 and 22 depend from claim 20 and are therefore patentable at least by virtue of their dependency.

Regarding claim 23, Applicant notes that this claim has been amended to recite the features of a motion-speed-calculating-unit that calculates leaf motion acceleration based on generated time series leaf positions; and a leaf-position-correction-unit that corrects the leaf positions of an area, where the calculated motion acceleration exceeds the established motion acceleration limit, such that the leaf motion acceleration is equal to or less than the established motion acceleration limit. Applicant respectfully submits that Siochi fails to disclose or suggest at least these features of claim 23.

As noted above, Siochi discloses collimator leaves which move at a constant velocity over the margin areas of a radiation field. Applicant respectfully submits, however, that there is no disclosure or suggestion in Siochi of motion-speed-calculating-unit that calculates leaf motion acceleration based on generated time series leaf positions, or of a leaf-position-correction-unit that corrects the leaf positions of an area, where the calculated motion acceleration exceeds the

established motion acceleration limit, such that the leaf motion acceleration is equal to or less than the established motion acceleration limit, as recited in claim 23.

Thus, Applicant respectfully submits that Siochi fails to disclose, suggest or otherwise render obvious all of the features recited in claim 23. Accordingly, Applicant submits that claim 23 is patentable over Siochi, an indication of which is kindly requested. Claims 24 and 25 depend from claim 23 and are therefore patentable at least by virtue of their dependency.

V. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may best be resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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August 10, 2005